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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,558	10/27/2003	Ravi Ram Vedula	201ES034A	2423

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EXAMINER

SERGEANT, RABON A

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,558

Applicant(s)

VEDULA ET AL.

Examiner

Rabon Sergeant

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/12/04, 5/7/04</u> . | 6) <input type="checkbox"/> Other: ____. |

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1. Claims 47 and 48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants have failed to adequately describe how the addition of a prepolymer based upon difunctional reactants serves to crosslink a thermoplastic polymer based upon difunctional reactants.
2. Claims 1-21, 23-43, and 45-50 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the production of thermoplastics from difunctional reactants, does not reasonably provide enablement for the production of thermoplastics from higher than difunctional reactants. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. Applicants' claims are drawn to the reaction of polyisocyanates and hydroxyl terminated polyether intermediates, which encompass higher than difunctional reactants; however, applicants have failed to teach how to make a thermoplastic using such reactants. The use of higher than difunctional reactants will introduce crosslinks into the polymer which in turn will promote thermoset properties. Furthermore, applicants' claimed polyisocyanate to polyether and chain extender ratio is only supported and enabled within the specification for diisocyanates. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).
3. Claims 9-12 and 37-43 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for water vapor permeable and antistatic polyurethanes that

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are derived from polyethylene glycol, does not reasonably provide enablement for such polyurethanes derived from other polyether reactants. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. Applicants have failed to teach one how to produce polyurethanes having the claimed moisture vapor transmission and surface resistivity properties without using polyethylene glycol, and the position is taken that applicants' claims should be so limited. It has long been known within the art, as evidenced by the art of record, that polyethylene polyethers perform a relatively unique function with respect to these properties, and applicants have provided no teachings that similar results can be achieved with other polyethers. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

4. Claims 6, 22, 27, 29, 44, and 51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Firstly, with respect to claim 27, the name of the claimed chain extender is incomplete.

Secondly, the terminology, "methylene bis diphenyl diisocyanate", is incorrect.

Specifically, "bis diphenyl diisocyanate" is improper.

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application

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claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-36 and 45-51 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-74 of copending Application No. 10/880,001. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to a thermoplastic polyurethane and a fiber produced from the polyurethane, wherein the respective polyurethanes are produced from reactants that are either equivalent to one another or are obvious variants of each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Shah ('852).

Patentees disclose a thermoplastic polyurethane produced from MDI, a polyethylene glycol having applicants' claimed molecular weight, and a hydroxyalkylated aromatic chain extender, such as hydroquinone bis(2-hydroxyethyl)ether. Applicants' claimed ratio of reactants are disclosed as well. Patentees further disclose that the polyurethanes may be produced using extrusion equipment at temperatures that meet those claimed. See abstract; columns 1, 2, and 4;

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and examples. Applicants' claimed properties are considered to be inherently possessed by the disclosed compositions, since they are derived from the same reactants as used by applicants.

9. Claims 1-3, 5-8, 11-19, 23, 30-37, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/23492.

The reference discloses water vapor permeable thermoplastic polyurethane produced from MDI, a polyethylene glycol having applicants' claimed molecular weight, and a hydroxyalkylated aromatic chain extender. The reference further discloses that the polyurethanes may be produced using extrusion equipment at temperatures that meet those claimed. Additionally, the reference discloses that the polyurethane film may be applied to textiles to yield water-proof, water vapor permeable fabrics. See abstract and pages 1, 2, 4, 6, 8, and 11. Applicants' claimed properties are considered to be inherently possessed by the disclosed compositions, since they are derived from the same reactants as used by applicants.

10. Claims 1-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/23492 in view of Henn ('316).

As aforementioned, the primary reference discloses water vapor permeable thermoplastic polyurethane produced from MDI, a polyethylene glycol having applicants' claimed molecular weight, and a hydroxyalkylated aromatic chain extender. The reference further discloses that the polyurethanes may be produced using extrusion equipment at temperatures that meet those claimed. Additionally, the reference discloses that the polyurethane film may be applied to textiles to yield water-proof, water vapor permeable fabrics.

11. The primary reference fails to disclose the use of hydroquinone bis(2-hydroxyethyl)ether as chain extender, applicants' elevated water vapor transmission rates, applicants' claimed ratios

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of chain extender to polyol, and fabrics comprising layers of the polyurethane and a fluoropolymer. However, Henn discloses similar polyurethane compositions that display superior water vapor transmission rates, wherein these features are disclosed. Polyurethanes utilizing hydroquinone bis(2-hydroxyethyl)ether as chain extender having elevated water vapor transmission rates are disclosed within example 3 and Table 3. Furthermore, reactant ratios that meet or approach those claimed are disclosed within the abstract and columns 5 and 6. Additionally, the Henn discloses at column 19, lines 53+ fabrics comprising layers of polyurethane and fluoropolymer.

12. Given the similar formulations and utilities of the respective compositions and the superior water vapor transmission rates of the secondary reference, the position is taken that it would have been obvious to modify the composition of the primary reference by incorporating therein the aforementioned features of the secondary reference, so as to arrive at a polyurethane exhibiting improved properties, such as water vapor transmission rates.

13. Claims 1, 4-7, 13-21, 23-25, 27-30, 32-36, and 45-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Foss ('233).

Patentee discloses a thermoplastic polyurethane having a melting point of 160°C to 200°C suitable for the production of melt-spun fibers, wherein the polyurethane is produced from MDI, a polyether glycol having applicants' claimed molecular weight, and hydroquinone bis(2-hydroxyethyl)ether. Applicants' claimed ratio of reactants are disclosed as well. See abstract; column 10; column 11, lines 1-43; column 12, lines 30+; and columns 14-16. Patentees' disclosure of prepolymers derived from difunctional reactants at columns 11 and 12 is

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considered adequate to meet applicants' limitations of claims 47 and 48, because no distinction is seen between applicants' polyurethane polymer, as claimed, and the claimed crosslinker.

14. Claims 2, 3, 8-12, 22, 26, 31, 50, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foss ('233) in view of Henn ('316), Kolycheck et al. ('053), or WO 00/23492, and further in view of Yamaguchi et al. ('442) or Kosinski et al. ('901).


As aforementioned, Foss discloses a thermoplastic polyurethane having a melting point of 160°C to 200°C suitable for the production of melt-spun fibers, wherein the polyurethane is produced from MDI, a polyether glycol having applicants' claimed molecular weight, and hydroquinone bis(2-hydroxyethyl)ether. Applicants' claimed ratio of reactants are disclosed as well.

15. While Foss discloses the use of polyethylene glycol, it is not disclosed as being preferred. Furthermore, Foss fails to specifically recite garments produced from both polyurethane fibers and polyester fibers. However, analogous compositions were known at the time of invention, wherein polyethylene glycol was specifically used to convey moisture vapor transmission properties and anti-static properties. This position is supported by the teachings of Henn, Kolycheck et al., and WO 00/23492. Since these properties were known to be desirable for the production of garments, the position is taken that it would have been obvious to produce the compositions and fibers of Foss using polyethylene glycol, so as to realize the benefits associated with its use. Furthermore, fabrics comprising both polyurethane fibers and polyester fibers were known at the time of invention. See column 16, lines 49-54 within Yamaguchi et al. See column 7, lines 39-42 within Kosinski et al. Therefore, the position is further taken that it would

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have been obvious to combine the fibers of Foss with other fibers, such as polyester fibers, in the production of fabrics.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.


RABON SERGENT
PRIMARY EXAMINER

R. Sergent
December 10, 2005